# New Bus Duct System Improves Power Distribution at Alabama River Pulp

## Claiborne, Ala., market pulp mill chooses new system for safety, efficiency, expandability, and ease of installation

After witnessing the blowup of a number of bus ducts, plus experiencing problems with installing interlocked armored cable to replace them at its Claiborne, Ala., market pulp mill, Alabama River Pulp searched for a safer, more efficient system of power distribution, according to Gary Dunn, assistant electrical and instrument superintendent.

The mill chose MPHusky's Cabl-Bus, among other reasons, because it "uses fully insulated conductors with maintained spacing in a ventilated housing and provides the same amount of power distribution with far less conductor per phase than armored cable," Dunn said.

With the aid of customized installation manuals, each section of Cabl-Bus housing is erected in a manner similar to cable tray. Continuous conductors are then pulled and dropped into support blocks, which are spaced every 3 ft horizontally and every 1.5 ft vertically. Once the support blocks are tightened, the system is braced to withstand short circuit forces of more than 100,000 RMS symmetrical amps.

In addition, cable support blocks maintain cable spacing and the correct phasing arrangement. "This contributed significantly to overall efficiency and reliability of the system," Dunn said.

The efficiency of properly phased, spaced, and secured conductors in the preengineered system provides for lower impedance and lower voltage drop, and since Cabl-Bus is continuous, there are no power losses from intermediate splices or connections.

Reliability was also a prime consideration in selecting the new system for the mill's 48-MW operation, with some 15 substations constantly providing power for 75,000 to 80,000 hp. "Each phase arrangement is verified by computer-generated inductive reactance calculations, ensuring a more balanced load, and with top and bottom covers ventilated for optimum free-air rating, de-rating of cables is not required," Dunn said.

Design flexibility is built in with Cabl-Bus, allowing the system to be easily routed around unforeseen field obstructions when installing and allowing for easy, economical expansion of the existing system without expensive redesign.

"The system is installed 15% to 20% faster than other systems and is easily expandable," Dunn said. "It's also installed on a 3-phase, 2,000-amp, 15-kV utility tie breaker in the powerhouse."

Implementation of the system was worry-free, according to Dunn. " Once exact measurements were given to MPHusky engineers, a complete set of drawings showed not only the proper location of each section but detailed locations for all necessary equipment connections and all accessories." ■

**Alabama River's new system included installation of all necessary equipment, flanges, connections, fire stops, elbows, offsets, supporting structures, and other parts required to make a completely coordinated bus installation.**

*MPHusky Corp., Greenville, S.C.*